



Chemical and Material Risk Management Directorate

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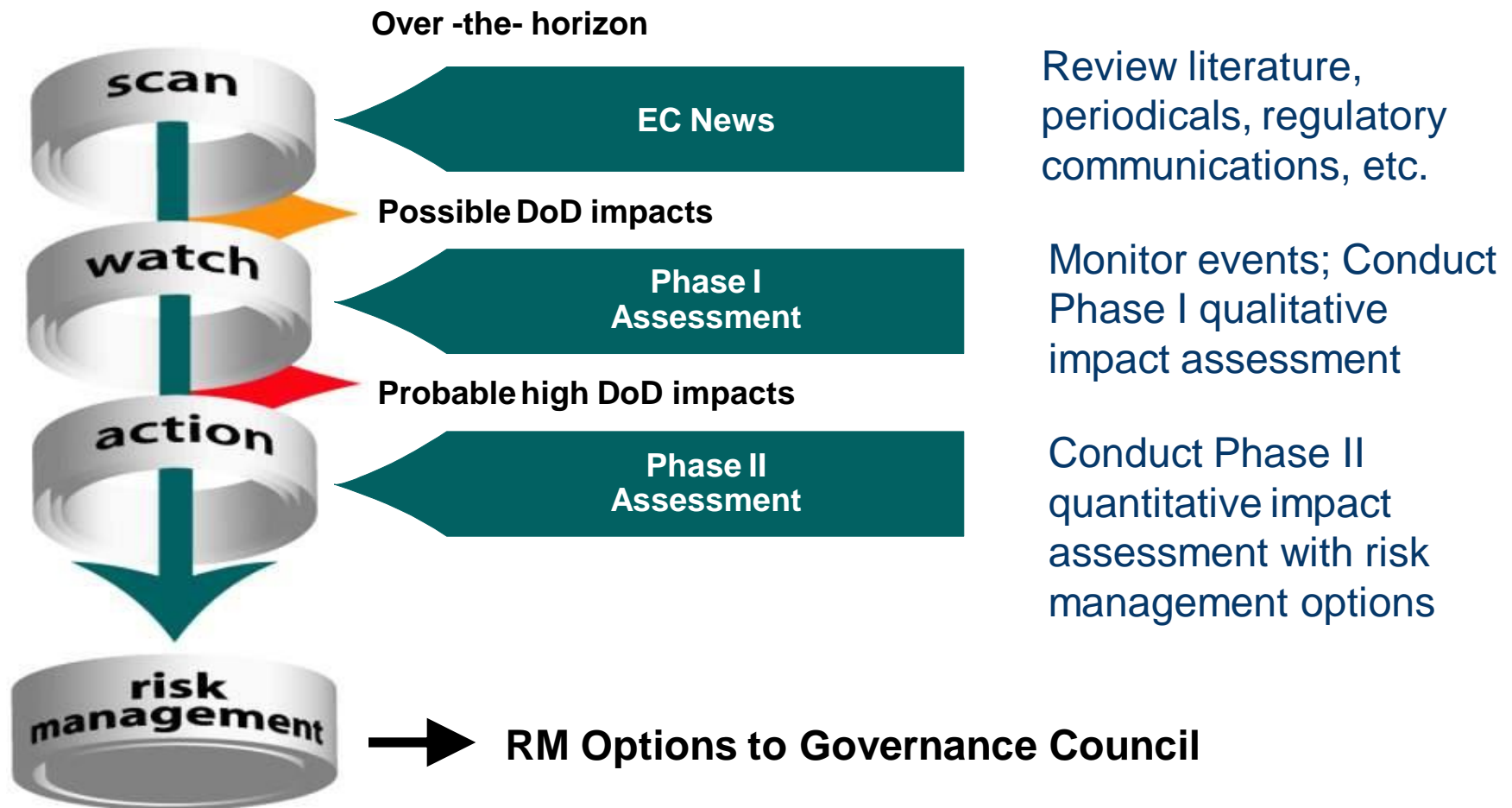
# US Army Public Health Command's (Prov) (Formerly USACHPPM) Process to Screen Chemicals in Support of DoD's CMRM Emerging Contaminants Program

**Sherri Hutchens**

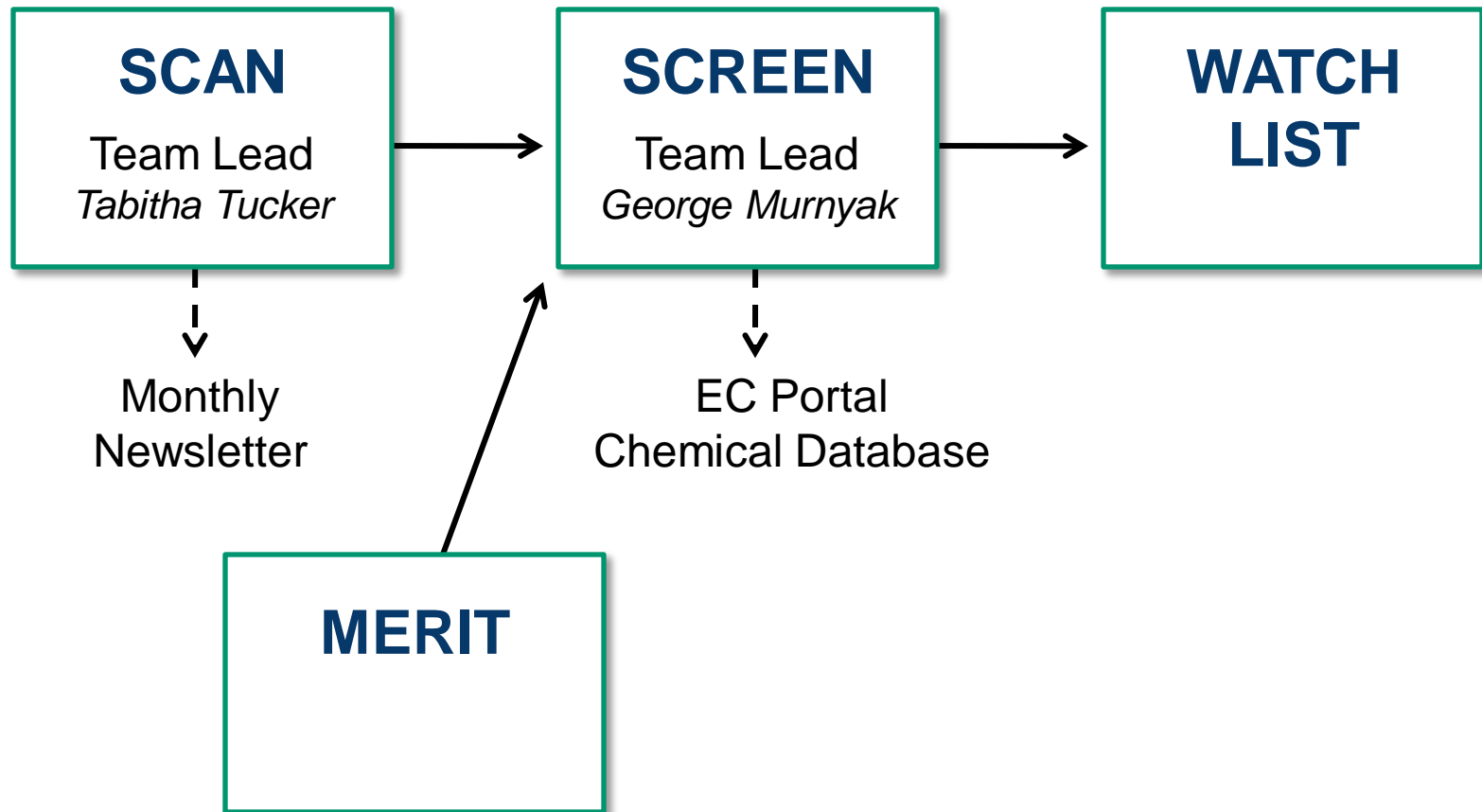
Environmental Health Risk Assessment Program,  
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# EC “Scan-Watch-Action” Process



# Scan / Screen Process



# Scanning Process-Early indicators

- Federal Regulators
  - OSHA
  - EPA (IRIS, TSCA, CHAMP)
- State (CA, NJ and MA)
- International (EU REACH and Canadian)
- Environmental Journals
- Environmental Organizations (Sierra Club)

We scan over 80 sources and conduct over 500 scans per month

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March 2009

## EMERGING CONTAMINANTS IN THE NEWS

*The following are brief summaries of recent developments related to emerging contaminants. When available, links and references to other sources of information are provided for readers seeking more detailed information on the topic. Distribution authorized to the Department of Defense and U.S. DoD contractors only (March 2009). Other requests for this newsletter shall be referred to Shannon Cunniff, [Shannon.Cunniff@osd.mil](mailto:Shannon.Cunniff@osd.mil)*

**In this issue:** [Antimony](#), [Arsenic](#), [Beryllium](#), [Cadmium](#), [Chromium](#), [Dioxins](#), [Lead](#), [Mercury](#), [Nanomaterials](#), [PFOA](#), [Platinum](#), [TCE](#), [Risk Assessment General](#), [Upcoming Conferences](#)

**Antimony** (Used in DoD equipment including batteries, antifriction alloys, small arms, cable sheathing, and tracer ammunition.)

The National Institute for Occupational Safety and Health (NIOSH) is investigating firefighters'

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Agriculture campaign - Enough is Enough (Thu, 22 Jan 2009 16:07:18 +0000)

Safety and health in mines research advisory board Annual review 2007 (Thu, 22 Jan 2009 10:54:14 +0000)

HSE Information Charter (Thu, 22 Jan 2009 08:08:26 +0000)

Quarterly statement of nuclear incidents at nuclear installations (Thu, 22 Jan 2009 08:07:03 +0000)

Firms exposing workers to asbestos will be penalised (Thu, 22 Jan 2009 08:03:48 +0000)

Nuclear guidance on the demonstration of ALARP updated (Wed, 21 Jan 2009 08:05:06 +0000)

Asbestos Liaison Group (ALG) (Wed, 21 Jan 2009 08:03:35 +0000)

### Science Magazine

# Purpose of Chemical/Material Screening

- Eliminate EC candidates from further analysis.
- Recommend priority candidates for detailed analysis.
- Identify initial issues associated with the EC.

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## EC Screen List

Chemical Name	CAS No
1 chloro 2,3 epoxypropane	51594-55-9
1,1 dichloroethane	75-34-5
1,1 dimethylhydrazine	57-14-7
1,1,1,2 tetrachloroethane	630-30-6
1,1,1,2,2,3,4,5,5,5-decafluoropentane (HFC-4310mee)	138495-42-8
1,1,1,2-tetrafluoromethane (HFC-134a)	811-97-2
1,1,1,3, pentafluoropropane (HFC-245fa)	460-73-1
1,1,1,3,3-pentafluorobutane (HFC-365mfc)	406-58-6
1,1,1-Trichloroethane	71-55-6
1,1,2 trichloro-1,2,2 trifluoroethane	76-13-1
1,1,2 trichloroethane	79-00-5
1,1,2,2-tetrachloroethane	79-34-5
1,1-difluoroethane (HFC-152a)	75-37-2

# Key Screening Questions

- Is the chemical/material important to mission of DoD?
- Is it probable that the chemical/material will be regulated or subject to regulatory policy change?

# Screening Process Details

Step 1. Does chemical/material meet definition of an emerging contaminant?

*ECs are chemicals/materials that have pathways to enter the environment and present potential unacceptable human health or environmental risk and either do not have regulatory peer-reviewed human health standards or the regulatory standards are evolving due to science, detection capabilities, or new pathways.*

# Screening Process Details

## Step 2. Apply CMRM Rejection Rules

- *Chemical is not used by DoD.*
- *Chemical is used by DoD but use is not significant to DoD mission.*
- *DoD's use of chemicals not DoD unique or other DoD activities manage any associated risk.*

# Screening Process Details

## Step 3. Apply CMRM Acceptance Rules

- *The probability of regulatory change affecting 1 of 5 DoD Functional areas.*
- *A potential change in our understanding of impact on health.*
- *A potential impact to the public perception of DoD.*
- *A potential impact to current manufacturing, transportation, storage, use, or disposal practices.*

# Key Data Sources

- *MERIT Members*
- *HMIRS\**
- *MIDAS\**
- *EPA TRI*
- *TOX NET*
- *KBCRS\**
- *Army Environmental Reporter\**

*\* Passwords are required*

## **Hazardous Materials Information Resource System (HMIRS)**

- DoD system developed and maintained by the Defense Logistics Agency.
- Provides a central repository for Material Safety Data Sheets for materials purchased by the Federal Government through DoD.
- System designed to help DoD personnel who handle, store, transport, use and dispose of hazardous material.

## **Munitions Items Disposition Action System (MIDAS)**

- Database developed by the U.S. Army Defense Ammunition Center.
- Provides essential information on munitions used for demilitarization planning, resource recovery and reuse, waste characterization, environmental permit applications and impact assessments.
- Contains detailed technical package information on a wide range of DoD munitions.




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## Federal Facility Report

Detail columns in online reports are collapsed by default (Feature not in Trends Reports). Click the  icon to view the additional columns. Use your Browser back feature to collapse. Alternately you can select / deselect desired columns from this screen.

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### Maps:

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### Year of Data

2007 

### Geographic Location

All of United States 

### Chemical Released

All chemicals 

### Industry

All Industries 

### Federal Facilities

All Federal Agencies 

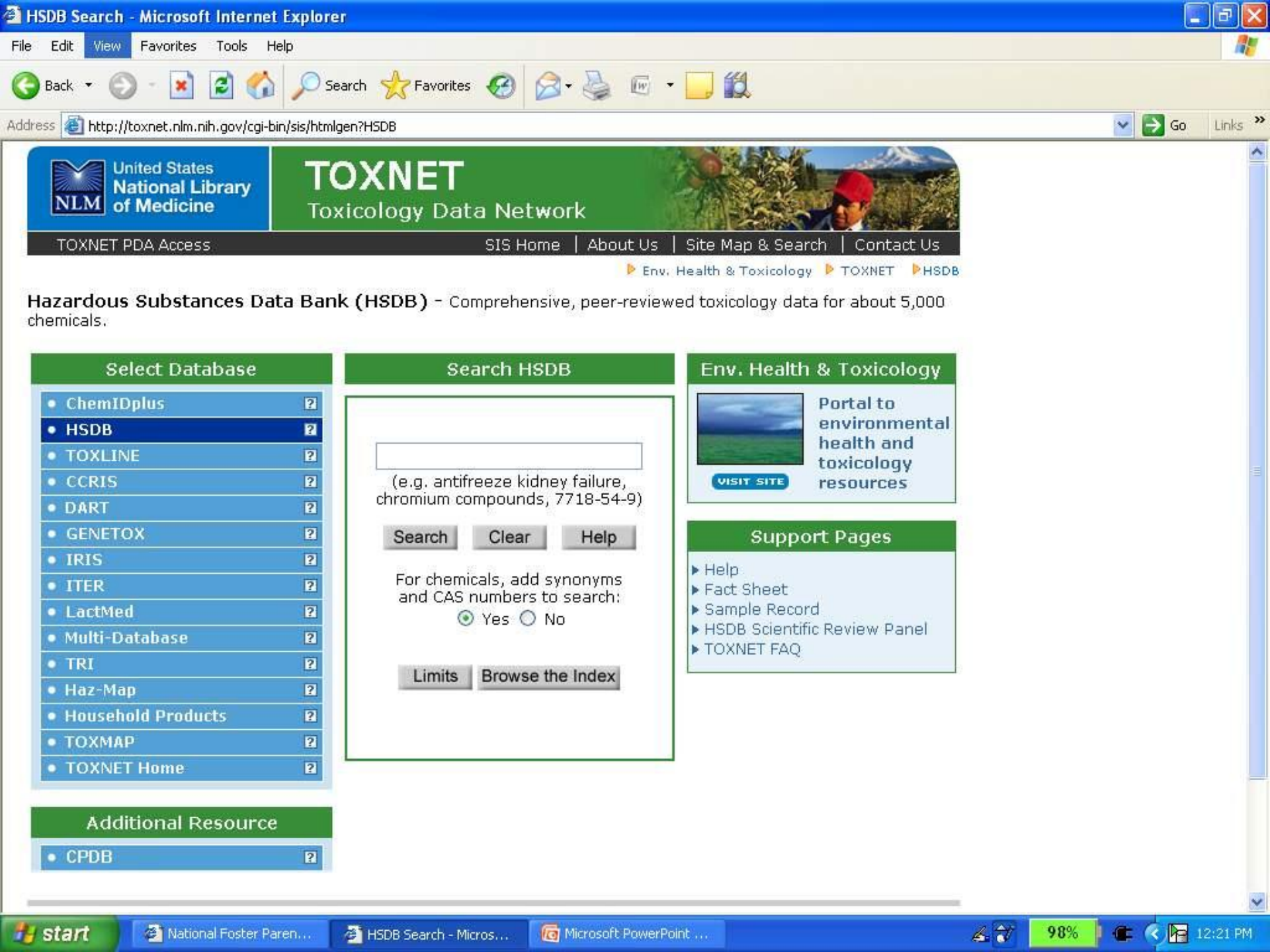
### Data Set

☒ Select 2007 PDR data set (frozen on September 22, 2008 and released to the public in March 2009)  
Data updates will be made available later

[Generate Report](#)

### Report columns to include

- ☐ Number of Form Rs
- ☐ Number of Form As (starting 1995)
- ☒ **Total On-site Disposal or Other Releases**  
*Details*
  - ☐ On-Site Disposal to Class I Wells, RCRA Subtitle C Landfills, and Other On-Site Landfills
  - ☐ Other On-Site Disposal or Other Releases
- ☒ **Total Off-site Disposal or Other Releases**  
*Details*
  - ☐ Off-Site Disposal to Underground Injection Wells, RCRA Subtitle C Landfills, and Other Landfills
  - ☐ Other Off-Site Disposal or Other Releases
- ☒ **Total On-and Off-site Disposal or Other Releases**



# Knowledge-Based Corporate Reporting System (KBCRS)

- Web-based application that provides environmental program data to OSD.
- Provides predefine reports such as those published in Annual Report to Congress.
- Provides an ad hoc reporting tool that gives information on chemicals found on DoD sites.

# **Army Environmental Reporting Online (AERO)**

- State of the art “portal” to the Army Environmental Database.
- Includes a number of Army environmental reporting systems.
- Environmental Restoration Information System (ERIS) is one such systems.
- ERIS provides a means to search and generate reports of the chemicals found on Army training or firing ranges.

# QUESTIONS?

# Chemicals of Interest

## Basic Chemical Information

- Hexanitrohexaazaisowurtzitane
- China-Lake 20 (CL-20)
- CAS No. 14913-74-7
- Nitroamine explosive
- Less visible smoke
- Insensitive to external stimuli
- Very costly \$400 dollars/pound

## Why Emerging?

- New chemical
- No available toxicity data for development of human health damage risk criteria

## General Uses

- Oil well industry using CL-20 in shaped charges

## DoD Uses

- Livermore Erosive Initiator
- Spider Grenades
- Research and Development efforts to find applications

# Chemicals of Interest

## Basic Chemical Information

- Antimony (Sb)
- CAS No. 7446-36-0
- Metal
- Antimony trioxide a common flame retardant

## Why Emerging?

- Listed as addition to EU RoHS
- Sb listed in EU NGO SIN List
- Listed as candidate for IRIS update
- NIOSH evaluating possible health concerns related to firefighter pants treated with Sb trioxide

## General Uses

- Chiefly used as an alloy with lead in lead-acid storage batteries
- Sb trioxide used as flameproofing agent in textiles and plastics
- Pigments in ceramics, rubber, pyrotechnics, and paints

## DoD Uses

- Camouflage paints
- Ammunition primers and pyrotechnics (390 items listed in MIDAS)
- 2379 items in HMIRS contain Sb
- Solders
- Ship ballast

# Chemicals of Interest

## Basic Chemical Information

- Sulfur hexafluoride (SF<sub>6</sub>)
- CAS No. 2551-62-4
- Greenhouse gas
- Global Warming Potential of 23,900
- Atmospheric lifetime of 3,200 years

## Why Emerging?

- Global Warming Pollution Reduction Act
- Listed as pollutant on EU Emission Register
- ACGIH “under study list”

## General Uses

- Inert tracer gas for studying ventilation systems
- Circuit breakers and switches

## DoD Uses

- Waveguide pressurization gas in radar systems
- Stored chemical energy propulsion systems in torpedoes
- Leak detection agent during repair of helicopter rotor blades

# Proponent & Regulations

**Proponent:** Chemical and Material Risk Management Directorate, DoD

## Governing Regulations

- DoD Directive 4715.1E Environment, Safety, and Occupational Health
- DoD Instruction 5000.2 Operation of the Defense Acquisition System
- DoD Instruction 4715.18 Emerging Contaminants (EC)
- Executive Order 13423: Agency-Level Toxic and Hazardous Chemical Reduction Plan

**Scanning/Screening Support:** Environmental Health Risk Assessment Program, USACHPPM